

**OFFICE OF THE STATE FIRE MARSHAL  
STATE OF ILLINOIS**

Statute, Rule or Standard Policy Interpretation:      **Conditions that Allow the Elimination of Sprinkler and Smoke Detection Systems in Haunted Houses**

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Title:	Fire Prevention and Safety
Part:	41 Ill. Adm. Code 100
Section Number:	LSC Section 12.4.7 and 13.4.7
Section Title:	Special Amusement Buildings
Policy Number:	12-TS-01

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**Purpose:** This instruction provides guidance to ensure uniform enforcement of 41 Ill. Adm. Code 100 (the “Part 100” rules) and the NFPA Life Safety Code (NFPA 101) adopted by reference within the Part 100 rules with respect to Special Amusement Buildings used as haunted houses. Specifically, the policy is to be applied to determine when a haunted house structure can be considered sufficiently open or unenclosed to consider normally required smoke detection devices or automatic fire sprinklers to be ineffective and therefore, not required.

**Scope:** Statewide application for special amusement structures being used as haunted houses.

**Current Code:** NFPA 101 Life Safety Code includes requirements that are applicable to Special Amusement Buildings. These requirements are found in Section 12.4.7 and 13.4.7 for new and existing special amusement buildings respectively. Haunted houses are categorized as special amusement buildings by the Life Safety Code:

*A.3.3.25.8 Building, Special Amusement.  
Such structures include amusements such as a haunted house, a roller coaster-type ride within a building, a multilevel play structure within a building, a submarine ride, and similar amusements where the occupants are not in the open air.*

Amongst other requirements, the Life Safety Code requires that special amusement buildings (haunted houses) follow the requirements applicable to assembly occupancies:

*12.4.7.1  
Special amusement buildings, regardless of occupant load, shall meet the requirements for assembly occupancies in addition to the requirements of 12.4.7*

Furthermore, the Life Safety Code requires that special amusement buildings (haunted houses) be protected by automatic sprinkler systems except for relatively small buildings:

*12.4.7.2  
Every special amusement building, other than buildings or structures not exceeding 10 ft in height and not exceeding 160 ft<sup>2</sup> in horizontal projection, shall be protected throughout by an approved, supervised automatic sprinkler system*

*installed and maintained in accordance with Section 9.7. Where the special amusement building is movable or portable, the sprinkler water supply shall be permitted to be provided by an approved, temporary means.*

Also, the Life Safety Code requires that special amusement buildings (including haunted houses) that operate in reduced lighting levels, be protected by an automatic smoke detection system:

*12.4.7.3*

*Where the nature of the special amusement building is such that it operates in reduced lighting levels, the building shall be protected throughout by an approved automatic smoke detection system in accordance with Section 9.6. Actuation of any smoke detection system device shall sound an alarm at a constantly attended location on the premises. Actuation of the automatic sprinkler system, or any other suppression system, or actuation of a smoke detection system having an approved verification or cross-zoning operation capability shall provide the following:*

- (1) Cause illumination in the means of egress to increase to that required by Section 7.8*
- (2) Stop any conflicting or confusing sounds and visuals*

As a result of these requirements, and the sometimes unorthodox configurations being used to construct haunted houses, questions have arisen in regard to the applicability of the Life Safety Code's requirements to structures that may or may not be considered actual "buildings" or that may be sufficiently open to a degree that they either should not be considered buildings needing to comply with the Life Safety Code or should not be subject to compliance with specific issues addressed by the Life Safety Code. The focus of most questions to the OSFM is "how open does a building or structure have to be before the Life Safety Code's Special Amusement Building requirements for sprinkler and smoke detection system installation do not have to be applied"?

Examples of structures and questions that have been presented to the OSFM include, but are not limited to special amusement (haunted house) structures that:

- are stand-alone and consist of two walls, but no ceiling or roof covering, forming a tunnel-like path.
- are stand-alone and consist of two walls, but no ceiling or roof covering, forming a tunnel-like path located underneath an open structure consisting of only a roof supported by columns, but having no walls.
- have only two or three enclosing walls.
- have walls that do not extend to the ceiling or roof of the structure, thus forming a gap or opening at the top of the walls that can allow heat and/or smoke to dissipate.
- have four walls, but with either no ceiling/roof, or the application of mesh or perforated material to serve as the ceiling/roof.

## References & Explanation:

Several sources were consulted to develop this policy.

### NFPA Life Safety Code.

The Life Safety Code does not contain definitive guidance relative to when a special amusement structure should be considered open. The Annex note of the LSC corresponding to the definition of a Special Amusement Building offers the following:

#### *A.3.3.25.8 Building, Special Amusement.*

*Such structures include amusements such as a haunted house, a roller coaster-type ride within a building, a multilevel play structure within a building, a submarine ride, and similar amusements where the occupants are not in the open air.*

However, no subsequent guidance is offered to determine what is, or is not, to be considered “open air”.

Furthermore, the LSC’s definitions of “building”, “Structure” and “Open Structure” offer little to guide the code user relative to determining what should or should not be considered open:

#### *3.3.25 Building.*

*Any structure used or intended for supporting or sheltering any use or occupancy.*

#### *3.3.197 Structure.*

*That which is built or constructed.*

#### *3.3.197.5 Structure, Open.*

*A structure that supports equipment and operations not enclosed within building walls.*

The LSC’s Annex notes for Section 3.3.197.5 do offer some minimum guidance regarding structures that consist only of roofs or canopies without walls:

#### *A.3.3.197.5 Structure, Open.*

*Roofs or canopies without enclosing walls are not considered an enclosure.*

The Life Safety Code does include language that distinguishes when a parking structure should be considered an “Open-Air Parking” structure:

#### *3.3.197.6 Structure, Open-Air Parking.*

*A structure used for the parking or storage of motor vehicles that have (1) uniformly distributed openings in exterior walls on not less than two sides totaling not less than 40 percent of the building perimeter, (2) aggregate areas of such openings in exterior walls in each level not less than 20 percent of the total perimeter wall area of each level, and (3) interior wall lines and columns not less than 20 percent open with openings distributed to allow ventilation.*

Also, the OSFM has developed and applies a policy that addresses permitted fueling of bulk transport trucks within a structure if at least 50% of the exterior walls are open the building is not considered a building or a structure. However, that the policy is not related to smoke or heat dissipation but rather the dissipation of flammable or combustible vapors and therefore cannot be used for direct application to the scenario in question.

#### NFPA Fire Protection Handbook

The NFPA Fire Protection Handbook discusses the issue of openness in relation to the enclosure of the products of combustion, but the Handbook leaves the determination of openness to the authority having jurisdiction (AHJ) and does not offer objective guidelines or measurements for determining openness:

*It is sometimes difficult to determine when a structure is open and when it is enclosed. An open structure may include a roof to provide some protection from the elements. Additionally, open structures may be provided with partial walls intended to shield the operations from environmental conditions or to segregate the operations. The AHJ must determine whether the open structure truly meets the definition of an open structure or whether the facility is a building. As a guide, the AHJ could determine whether the structure would react as an enclosed building in the event of fire.*

*Within a building, walls acting in conjunction with a roof enclose the combustion process and products of combustion, thereby allowing fire to spread both horizontally and vertically to other areas. The advantage of an open structure is that it allows the products of combustion to vent to the atmosphere, instead of spreading to unaffected areas of the structure. This depends on wind and climatic conditions in addition to the design of the structure.*

*If the roof and walls could direct or channel products of combustion to other unaffected portions of the structure, thereby preventing their free venting to the atmosphere, then that portion of the open structure could be considered a building. It is not uncommon to have buildings constructed within the framework of an open structure, resulting in a mixed classification.*

#### NFPA 5000 Handbook:

NFPA 5000, entitled “Building Construction and Safety Code” is the NFPA’s building code product. Commentary found in the NFPA 5000 Handbook discusses the topic of enclosure vis-à-vis special amusement buildings, but as with other identified sources, it does not offer objective parameters for determining openness:

*The term special amusement building has application in the provisions of 16.4.7. Its definition addresses the structure and its use. The structure might be a permanent building or a semitrailer truck or other similar enclosure this is semi-permanent or mobile. Special amusement buildings are designed to provide a full enclosure for patrons. Structures that are not fully enclosed (for example, a merry-go-round with a roof and no side walls) are not included in the definition.*

*The definition also includes special amusement buildings within a larger structure, such as an amusement building within a shopping mall. Theaters, movie house, or similar public assembly occupancies used for amusement or entertainment are not defined as special amusement buildings.*

**Policy:**

Special Amusement Buildings used as haunted houses are required to comply with the requirements of LSC Section 12.4.7/13.4.7 with the exception that the requirements for automatic sprinkler protection or automatic smoke detection shall not apply to buildings or structures that:

- have no roof or ceiling (the presence of partial roof/ceiling assemblies or mesh/tarp/plastic or other forms of covering, including those of perforated materials, to any degree would constitute enclosure requiring sprinkler system and smoke detector installation); or
- have openings in all walls, including interior walls, equaling 1/3 the height of the walls and located in the upper portion of the walls to allow heat and/or smoke to freely dissipate through the openings; or
- are of either of the above types of described structures and are located under a larger pavilion or canopy-like structure without enclosing walls or where enclosing walls are no higher than the walls of the haunted house structure located within and that provides separation between the top of the walls of the haunted house structure and a horizontal line drawn at the lowest level of the roof deck above or roof framing above equaling at least 1/3 the height of the haunted house walls.

Special Amusement Buildings used as haunted houses may also elect to follow the code-recognized procedure of performance-based design (fire modeling) described in Chapter 5 of the Life Safety Code to demonstrate that the configuration of the structure provides free and immediate ventilation of the products of combustion to the outside and maintains a tenable means of egress without code-prescribed protection or systems.

Where the nature of the haunted house is such that it operates in reduced lighting levels, but smoke detection is not provided as the result of relaxed requirements set forth in this policy, the haunted house shall be equipped with a manual means of activating an alarm that shall sound at a constantly attended location on the premises. Actuation of the manual alarm shall also:

- (1) Cause illumination in the means of egress to increase to the level required by Life Safety Code Section 7.8; and
- (2) Stop any conflicting or confusing sounds and visual.

When required, a manual means of activation shall be located at the exit from the haunted house and additional manual activation locations shall be located so that from any part of the haunted house, no horizontal distance on the same floor exceeding 100 ft. shall be traversed to reach a manual means of activation.

A clearly identified manually activated switch is allowed to serve in place of a listed manual pull box .

All staff and visitors of the haunted house shall be given instruction prior to entry relative to the location and function of the manual alarm switches.

**Effective Date:** September 2012